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09/711,156

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James M. Clark

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EXAMINER

CHANG, EDITH M

ART UNIT

PAPER NUMBER

2634

8

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/711,156

Applicant(s)

CLARK, JAMES M.

Examiner

Edith M Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 13-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 12, 16, 17, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) 9, 11, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.7.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 9-11 are objected to because of the following informalities:

Claim 9, line 6, "the portion of the correlation signal" is suggested to be changed to "a portion of the correlation signal"; lines 8-9, "the delayed portion of the correlation signal" is suggested to be changed to "a delayed portion of the correlation signal"

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10, lines 8-9, "the delayed combined signal" lacks antecedent.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 16, 17, 20 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Terashima (US 6385232 B1).

Regarding **claims 16 & 21**, Terashima discloses a method for detecting a code comprising: correlating (Abstract, 11-14 FIG.3) a received signal (S10 FIG.3) and a plurality of reference codes (12 & 15 FIG.3 wherein code generators generate a plurality of reference codes) thereby generating a plurality of correlation signals (11-13, 17 FIG.3, column 3 lines 28-35); combining the plurality of correlation signals based on the dither pattern which is a stationary ditch pattern and producing a final combined correlation signal (S13, S15, S19 FIG.3, FIG.2A where the long code is generated by using the common short code shown in the FIG.2A is the stationary pattern); detecting the composite code based on the final combined correlation signal (18 & 19 FIG.3, column 3 lines 35-50).

Regarding **claim 17**, Terashima discloses generating a plurality of combined correlation signals (13 FIG.3, column 3 lines 35-39); and arranging the plurality of combined correlation signals in order of the strength of the combined correlation signals (13-14 FIG.3, column 3 lines 28-lines 50, wherein the plurality of correlation signals stored in the memory and the maximum correlation detection picking the largest one that the algorithm of maximum detection provides arranging the plurality of combined correlation signals in order of the strength).

Regarding **claim 20**, Terashima discloses comparing the final combined correlation signal with previously generated final combined correlation signals; selecting based on the comparisons the combined correlation signal having the strongest correlation value (FIG.2, FIG.3, column 3 lines 28-lines 50 wherein the maximum correlation detection comparing the final combined correlation signal with previously generated final combined correlation signals

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and selecting the correlation signal with strongest correlation value associated the pattern/timing of FIG.2); and detecting the composite code by determining the phase of the long code based on a receive time of the selected combined correlation signal (FIG 2A, 2B, S12 FIG.3, column 3 lines 35-lines 50 wherein the timing/phase of the long code is obtained).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abaunza (US 5271034) in view of Cahn et al. (US 5535278).

Regarding **claim 1**, except explicitly specify the long code generation, Abaunza discloses a method of detecting a transmission code from a received signal, the transmission code being composed of a plurality of dithered codes (FIG.3, FIG.4), comprising: detecting the plurality of dithered codes (FIG.3, column 1 lines 32-44 wherein detecting the plurality of dithered codes transmitted by the satellites). However Cahn et al. teaches the long code (P code) is generated from the 10.23 MHz clock (20 FIG.1, column 10 lines 43-47). As Abaunza using the 10.23 MHz clock in the code generator of GPS receiver to generate Gold Code (FIG.4) comprising P code and C/A code (column 1 lines 32-44), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the long code generation taught by Cahn et al. in Abaunza's code generator to provide the P code for GPS receiver to enhance the accuracy and

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speed of signal processing by GPS receivers with an encrypted P-code sequence (column 9 lines 10-15).

Regarding **claim 5**, Abaunza discloses the dithered codes are dithered according to a stationary dither pattern (60 FIG.4; column 8 lines 43-46, column 9 lines 25-30, lines 60-65; where the Gold Code is generated according to the dither pattern that is stored and controlled by 50, 54 and 60 FIG.4).

7. Claims 2-4, 6-8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abaunza (US 5271034) in view of Cahn et al. (US 5535278) as applied to claim 1 above, and further in view of Terashima (US 6385232 B1).

Regarding **claim 2**, Abaunza does not explicitly specify the details of detecting/correlating signal, however Terashima teaches the detection of long code/short code (FIG.3, FIG.14, where the generating a detection signal S60 FIG.14, and combining the detection signals 84-85 FIG.14). As Abaunza detecting for the dither codes (FIG.3 & FIG.4, column 7 lines 48-63 where describes the bit correlation of the received spread spectrum signals with the codes generated by 30 FIG.3/FIG.4 including the dither codes which are composed the P code), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the detecting/correlating taught by Terashima in Abaunza's receiver to provide a accurate and more efficient synchronization detection (column 6 lines 19-22). The combined/modified method provides the details of the basic detecting/correlating of the transmitted code being composed of a plurality of dithered codes, and improves the detection/correlating. The combination/modification obtains the invention as specified in the claim.

Regarding **claim 3**, further Terashima teaches the detecting of the plurality of dithered codes (FIG.14, column 16 lines 5-18) being performed by correlating the received signal (S10, 82 FIG.14) with a plurality of reference codes (83 FIG.14) and generating a plurality of correlation sums (S64 FIG.14), each of the reference codes formed by delaying a reference code by a predetermined amount (FIG.7 show the reference codes CSC/LC formed by delaying a reference code by a predetermined amount T1 '232, 60 FIG.4 '034 shows the reference codes formed by delaying a reference code by a predetermined amount $-0/+97\text{ns}$ dither).

Regarding **claim 4**, further Terashima teaches the transmission code being composed of M dithered codes (FIG.7 A & B, M is 3), and M correlation sums generated (84 FIG.14), summing the M correlation sums to generate a present final sum (CORRELATION VALUE S30/output of matched filter FIG.7, 84-85 FIG.14), and the detecting of the long code being performed by determining a largest final sum from among the present final sum and a plurality of previously generated final sums and associating a time of the largest final sum (column 16 lines 5-42 wherein by determining a largest final sum from among the present final sum/the third CSC and a plurality of previously generated final sums/in LATCH 84 FIG.14, and associating a time of the largest final sum in FIG.7A the timing of the long code determined).

Regarding **claims 6 & 12**, excepting detecting the long code based on the combined portions of the correlation signal, Abaunza's discloses a dither code detector (FIG.2, FIG.3) comprising: a correlator unit (27-42 FIG.3) correlating the coded signal with a reference code (I/Q FIG.1 is the coded signal with a reference code) and outputting a correlation signal; a detector (100 FIG.5, column 14 lines 10-15 where 104 detects the matches from the correlation signals I'/Q') combining portions of the correlation signal (I'/Q') according to the ditcher pattern

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(column 9 lines 33-53, lines 60-64, wherein the ditcher pattern is a stationary ditcher pattern).

However further Terashima teaches detecting the long code based on the combined portions of the correlation signal (FIG.7, column 16 lines 5-42). As Abaunza detecting for the dither codes (FIG.3 & FIG.4, column 7 lines 48-63 where describes the bit correlation of the received spread spectrum signals with the codes generated by 30 FIG.3/FIG.4 including the dither codes which are composed the P code), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the detecting/correlating as cited in the claim taught by Terashima in Abaunza's receiver to provide a accurate and more efficient synchronization detection of long code (column 6 lines 19-22).

Regarding **claim 7**, Abaunza discloses a processing unit coupled to the detector (column 8 lines 32-45, 100 FIG.5/200 FIG.6) and processing the detected long code to determine timing information from the received coded signal (F_{CEST} FIG.5 to 58 FIG.4 to determining the timing, column 14 lines 19-27, lines 55-68 where the timing information determined).

Regarding **claim 8**, further Terashima teaches a delay unit (84 FIG.14) receiving the correlation signal (S60 FIG.14) and delaying it according to the dither pattern (S63 FIG.14) and outputting delayed correlation signals (86 FIG.14); and a combiner (85 FIG.14) receiving the correlation signal and combining it with the delayed correlation signals and outputting a combined correlation signal (S64 FIG.14).

Allowable Subject Matter

8. Claims 11, 18, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. Claim 9 is objected to informality, but would be allowable if rewritten to overcome the objections.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 09/711,155. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claim 1 of current application has broader claim that comprising the claim of copending Application No. 09/711,155.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No.

09/711,179. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claim 1 of current application has broader claim comprising the claim of copending Application No. 09/711,179.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
April 22, 2004



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